



Transportation Concept Report

State Route 123

District 4

June 2017



California Department of Transportation

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability

Approvals:

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06-30-17

Date

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Stakeholder Acknowledgement

During initial information gathering for the State Route (SR) 123 Transportation Concept Report (TCR), District 4 the Division of Transportation Planning and Local Assistance was approached by the Alameda County Transportation Commission (Alameda CTC) with a proposal to develop the San Pablo Avenue Multimodal Corridor Project that would include SR 123. Project participants include the Contra Costa Transportation Authority (CCTA), Alameda-Contra Costa Transit District (AC Transit) and all local jurisdictions along San Pablo Avenue, In addition to Alameda CTC and Caltrans District 4. The Project is scheduled to be completed by April 2019. District 4 has reached an agreement with stakeholders along SR 123 to develop an abbreviated version of the TCR and defer corridor concept to then completion of the San Pablo Avenue Multimodal Corridor Project. The development of this TCR is primarily based on information gathered from existing plans and projects developed by various agencies including the Metropolitan Transportation Commission (MTC), Alameda CTC, CCTA, AC Transit, the counties of Alameda and Contra Costa, and the cities of Oakland, Emeryville, Berkeley, Albany, El Cerrito and Richmond as well as Caltrans internal sources.

This TCR will be posted on the Caltrans Corridor Mobility website at:

<http://www.dot.ca.gov/hq/tpp/corridor-mobility/>

Document Preparation and Review

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MISSION

Provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability.

VISION

A performance-driven, transparent and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork.

GOALS

Safety and Health - *Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities.*

Stewardship and Efficiency - *Money counts. Responsibly manage California's transportation-related assets.*

Sustainability, Livability and Economy - *Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.*

System Performance - *Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.*

Organizational Excellence - *Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability.*

ABOUT THE TRANSPORTATION CONCEPT REPORT

System Planning is the long-range Transportation Planning process for the California Department of Transportation (Caltrans). The System Planning process fulfills Caltrans statutory responsibility as owner/operator of the State Highway System (SHS) (Gov. Code §65086) by identifying deficiencies and proposing improvements to the SHS. Through System Planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans goals of safety and health, stewardship and efficiency, sustainability, livability and economy, system performance, and organizational excellence.

The System Planning process is primarily composed of: the District System Management Plan (DSMP), the Transportation Concept Report (TCR), the Corridor System Management Plan (CSMP), and the *DSMP Project List*. The DSMP is a long-range strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system. The Transportation Concept Report (TCR) is a multi-jurisdictional planning document that identifies the existing and future route conditions as well as future needs for each route on the SHS, and informs the DSMP Project List. The CSMP is a more complex document that identifies future needs within corridors experiencing or expected to experience high levels of congestion. The DSMP Project List is a long-range list of conceptual, planned, and partially programmed SHS transportation projects used to recommend projects for funding. These System Planning products are also intended as resources for stakeholders including the public, partners, regional, and local agencies.

The TCR includes detailed review of all transportation modes in the corridor and if applicable, their current and projected levels of operation. Land use, community characteristics, and environmental assessments are described to show a corridor's context and where applicable, are called out as Key Corridor Issues. The TCR also includes Caltrans suggestions for optimizing transportation modes in relation to system preservation, efficiency and expansion. The Corridor Concept, with consideration for various transportation issues, factors and needs, presents the long-term vision for a route during a 25-year planning horizon. Planned and programmed projects from the SHOPP, STIP, RTP, CTP and local plans are included in this document as well as project proposals to help inform the Caltrans Project Initiation Document (PID) and project development process.

Other policies that guided the development of this document include the Caltrans Strategic Management Plan (2015-2020), Assembly Bill (AB) 32, Senate Bill (SB) 375, SB 391, SB 743, SB 486, SB 32, the California Transportation Plan 2040 (CTP 2040), Complete Streets – Integrating the Transportation System (DD 64 R2), Caltrans Smart Mobility Framework (SMF), the Statewide Transit Strategic Plan (STSP), the California Freight Mobility Plan (CFMP) and the Caltrans Interregional Transportation Strategic Plan (ITSP). Information on these efforts can be found at:

Caltrans Strategic Management Plan: <http://www.dot.ca.gov/perf>
AB 32: <https://www.arb.ca.gov/cc/ab32/ab32.htm>
SB 375: <http://www.arb.ca.gov/cc/sb375/sb375.htm>
SB 391: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100SB391
SB 743: <http://www.dot.ca.gov/hq/tpp/offices/omsp/SB743.html>
SB 486: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB486
SB 32: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32
CTP 2040: <http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/2040.html>
Complete Streets: http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html
SMF: <http://www.dot.ca.gov/hq/tpp/offices/ocp/smf.html>
STSP: <http://www.dot.ca.gov/hq/MassTrans/statewide-transit.html>
CFMP: <http://www.dot.ca.gov/hq/tpp/offices/ogm/cfmp.html>
ITSP: http://www.dot.ca.gov/hq/tpp/offices/omsp/system_planning/itsp.html

CORRIDOR CONCEPT

This facility Concept for State Route (SR) 123 (Corridor) is to maintain the current four-lane conventional highway on the existing alignment. This represents an interim concept and is consistent with the route currently functioning as a Principle Arterial as well as with Caltrans Strategic Goals. Once completed, the Alameda County Transportation Commission's (Alameda CTC) San Pablo Avenue Multimodal Corridor Project, along with the following document will inform the near and long-term facility concept for the SR 123 Corridor: the Countywide Bicycle and Pedestrian Plan (CBPP) and the Countywide Transportation Plan (CTP) Update by the Contra Costa Transportation Authority (CCTA), Countywide Multimodal Arterial Plan (MAP) by Alameda CTC (2016)¹, the West Contra Costa Transportation Advisory Committee's (WCCTAC) West County High Capacity Transit Study (2017)² and the Alameda-Contra Costa Transit District's (AC Transit) Major Corridors Study (2016)³. The goal of these locally-led efforts will be to identify projects and recommend strategies that focus on operational and multimodal improvements while meeting the regions' objectives and goals as well as those identified in Caltrans Strategic Management Plan 2015-2020.

CORRIDOR OVERVIEW

For the purpose of this TCR, the SR 123 Corridor has been divided into two segments. See Table 1 below and Figure 1 on the next page for corridor segmentation.

Table 1. SR 123 Corridor Segmentation

Segment	Location Description	County, Route Beg. PM	County, Route End. PM
1	Interstate (I-) 580 to Alameda/Contra Costa County Line	ALA 0.00	ALA 5.18
2	Alameda/Contra Costa County Line to I-80, City of Richmond	CC 0.00	CC 2.20

¹ <http://www.alamedactc.org/arterialplan>

² <http://westcountytransitstudy.com/>

³ <http://www.actransit.org/major-corridors-study/>

Figure 1. SR 123 Corridor Overview



ROUTE DESCRIPTION

SR 123 is located in the urbanized areas of western Alameda and Contra Costa Counties. The State Highway facility is a four-lane conventional highway functioning as a local roadway providing access to SR 13, Interstate (I-) 80 and I-580. The route is approximately 7.3 miles long, serving commercial and residential land uses and provides primary access to the Bay Area Rapid Transit District (BART) El Cerrito Plaza and El Cerrito Del Norte Stations. Segments outside of the State Highway designation are known as San Pablo Avenue. These include San Pablo Avenue in Alameda County from 14th Street to I-580 in Oakland and in Contra Costa County from I-80 in San Pablo to I-80 in Crockett.

ROUTE DESIGNATIONS AND CHARACTERISTICS

Table 2 below summarizes the route designations and characteristics for SR 123.

Table 2. SR 123 Route Characteristics

Segment #	1	2
Freeway & Expressway	No	No
National Highway System	No	No
Interregional Road System	No	No
Federal Functional Classification	Principal Arterial	Principal Arterial
Goods Movement Route	Alameda CTC Goods Movement Plan Tier 2 Truck Route California Freight Mobility Plan Tier 3 Freight Facility	California Freight Mobility Plan Tier 3 Freight Facility
Truck Designation	CA Legal Advisory/ CA Legal	CA Legal Advisory/ CA Legal
Regional Transportation Planning Agency	Metropolitan Transportation Commission (MTC)	MTC
Congestion Management Agency (CMA)	Alameda County Transportation Authority (Alameda CTC)	Contra Costa Transportation Authority (CCTA)
Terrain	Flat	Flat

LAND USE AND COMMUNITY CHARACTERISTICS

SR 123 passes through five local communities with varying mixes of compatible commercial-retail and multi and single residential land uses. Each jurisdiction along San Pablo Avenue has identified its share of the route as a Priority Development Area (PDA) as defined by the Association of Bay Area Governments (ABAG). PDAs are locally-designated areas within existing communities that have been identified and approved by cities or counties for future growth in the form of improved accessibility to transit, jobs, shopping and other services. The San Pablo Avenue Corridor PDAs contain plans for residential, retail and improved station circulation and transit connectivity.

The land uses east of the Corridor include low to moderate dense residential development that in some areas include small local business districts. In the low lying areas west of the Corridor, the land uses are mostly commercial and light industrial land uses with some residential. Growth in the jurisdictions along and adjacent to

the Corridor is likely to occur in existing communities with some affordable housing units and infill development opportunities while other communities will experience less growth due to the cost of housing.

Table 3. SR 123 Demographics

Demographics	Alameda County	Oakland	Emeryville	Albany	Contra Costa County	El Cerrito	Richmond
Total Population	1,510,271	402,339	10,497	19,020	1,081,232	24,136	106,469
Households	582,549	171,156	6,666	7,718	380,183	10,578	39,772
Household Size	2.76	2.57	1.70	2.59	2.82	2.38	2.88
Median Income	73,775	52,962	69,329	78,769	79,799	88,380	54,857

Source: US Census, 2010.

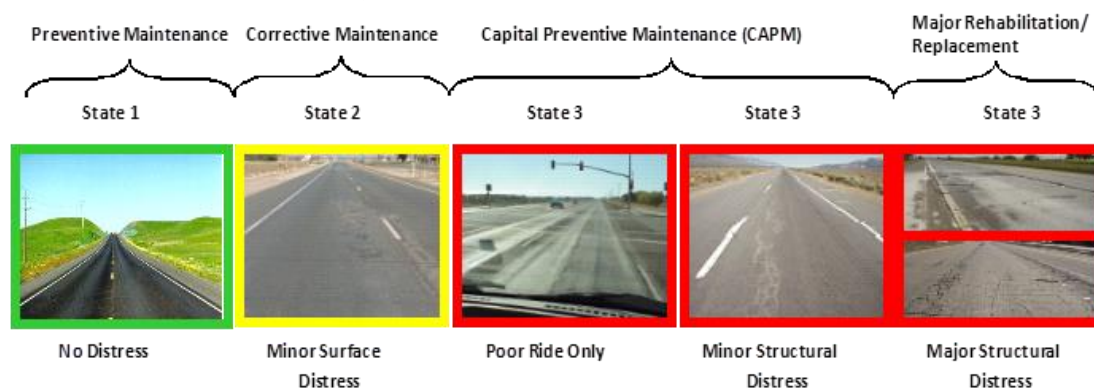
SYSTEM CHARACTERISTICS

SR 123 begins at I-580 in Oakland and ends at I-80 in Richmond. The route intersects SR 13 (Ashby Avenue) in Berkeley and is east of and runs parallel to I-80. It is functionally classified as a Principal Arterial. The route is two lanes in each direction with the exception of some locations where left-turn pockets, pedestrian refuge areas and corner bulb-outs have been constructed to improve storage, accommodate larger/longer vehicles and provide pedestrian safety. In places, it features a tree lined raised median with cut-outs creating pedestrian refuge areas for mid-block crosswalk facilities and breaks to provide for access to and from residential streets. Each city along the route offers free and metered street level parking with time limits varying between 90 minutes and two hours depending on the time of day.

The I-80 SMART Corridor Project is an intergraded network of electronic devices, ramp meters and other Intelligent Transportation System (ITS) elements deployed along I-80 between the Carquinez and San Francisco Oakland Bay Bridges to enhance motorist safety, improve travel time reliability and reduce accidents and associated congestion. New ITS components have recently been deployed along the SR 123 Corridor, including 19 Changeable Message Signs (CMS) and 32 Closed Circuit Televisions (CCTV) being used to manage freeway traffic diversion as part of the I-80 SMART Corridor during periods of congestion and accidents.

According to 2013-2015 data, the pavement conditions for a significant portion of SR 123 received a poor ride/bad ride quality grade, although no structural distress was present. As indicated in Figure 2 below, Poor Ride Only represents the third state of pavement distress level. The corresponding treatment program is called Capital Preventive Maintenance (CAPM), which should be applied to affected sections on SR 123. Figure 3 shows almost the entirety of SR 123 where these sections are located.

Figure 2. Pavement Conditions Description

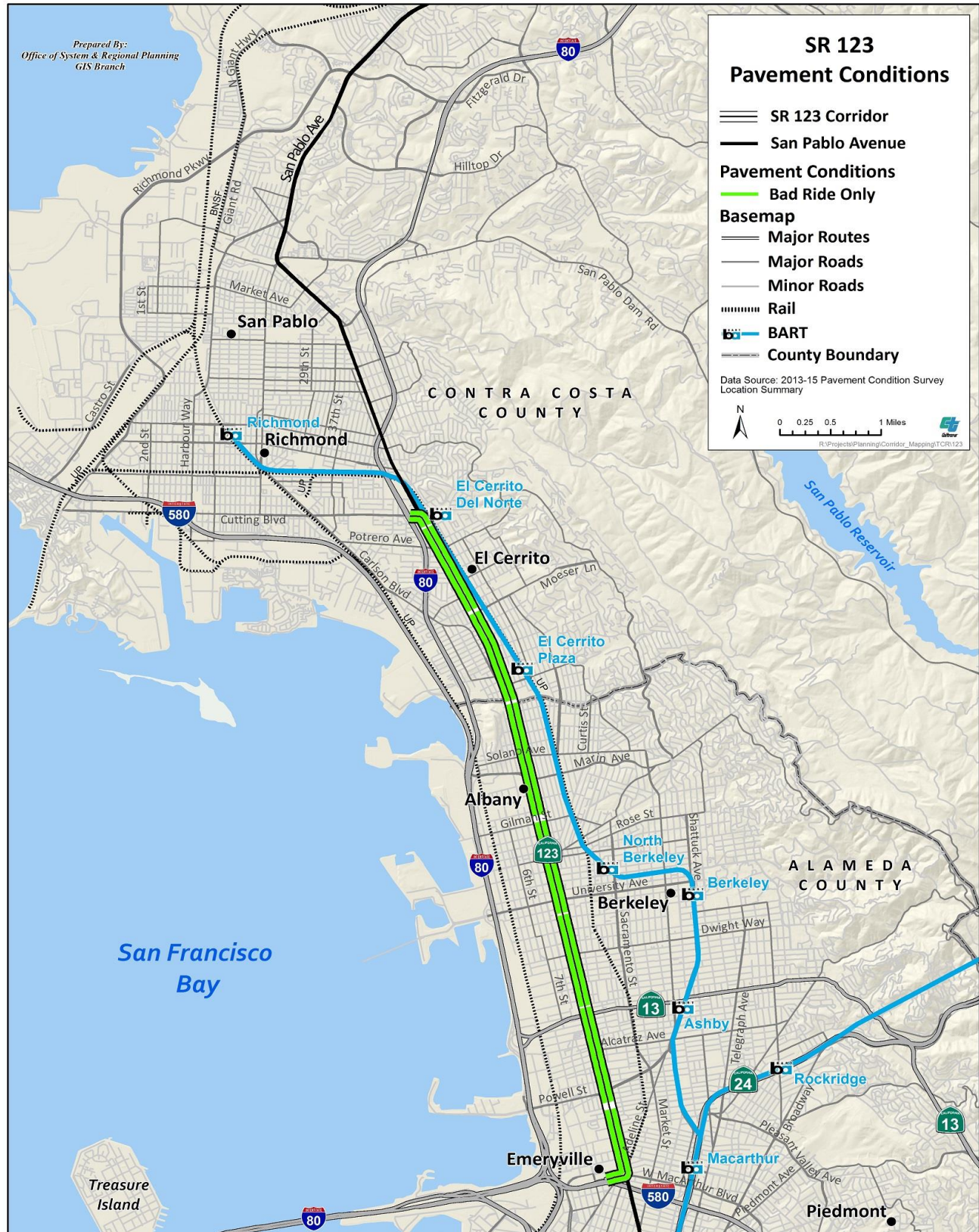


State 1: Good/excellent condition with few potholes or cracks ⇒ Preventive maintenance project

State 2: Fair condition with minor cracking or slab cracking ⇒ Corrective maintenance project

State 3: Poor condition with significant to extensive cracks or poor ride only ⇒ CAPM, rehabilitation or reconstruction project

Figure 3. 2013-2015 Pavement Conditions



NON-MOTORIZED FACILITIES

SR 123 is a shared-road facility. The Alameda CTC Multimodal Arterial Plan and Contra Costa Transportation Authority Bicycle and Pedestrian Plan identify a network of interconnected Class I, II, and III and shared road facilities on Shellmound Street, West Street, 9th Street, Horton Street, Pierce Street/San Luis Street, Carlson and Key Route Boulevards and the Ohlone Greenway Trail between I-580 and I-80. The remainder of the bicycle network includes crosswalks and local streets to travel along and across SR 123. Continuing beyond the immediate network, cyclists are able to reach BART, the I-80 Bikeway, and the San Francisco Bay Trail between Richmond and the San Francisco-Oakland Bay Bridge Bike Trail. As an urban conventional highway, SR 123 has no access control, resulting in multiple potential conflict points between vehicular traffic and non-motorized modes of travel within the Corridor. A combination of local pedestrian infrastructure and controlled intersections provide access along and across the Corridor. Sidewalks are present along the entire SR 123 and the distances between crossing opportunities vary depending on the associated land uses and the spacing between intersections. Time of day and traffic volumes and speeds can also affect comfort levels at some of the crossings. Gaps in the pedestrian network exist due to lack of connectivity between a hierarchy of existing facilities and interregional and local roadway facilities. Larger intersection corner radii tend to encourage higher vehicle turning speeds and result in longer pedestrian crossing distances. These factors may lead to increased vehicle-pedestrian conflicts and discourage walking through the area.

Future improvements focus on reducing or eliminating existing gaps and barriers in the network, and improving existing facilities. The Contra Costa Bicycle and Pedestrian Plan and Alameda CTC Multimodal Arterial Plan as well as local plans (including the City of Berkeley 2017 Bicycle Plan⁴, the City of El Cerrito 2016 Active Transportation Plan⁵ and the City of El Cerrito 2014 San Pablo Specific Plan⁶) envision programs, projects and the creation of a bicycle and pedestrian network that connects jurisdictions, provides access to transit and Central Business Districts, as well as the inter-jurisdictional trail network. These Plans also strive for reliable and accessible facilities for all existing and potential new users in an effort to provide alternatives to driving. Table 4 lists the bicycle and pedestrian needs along the Corridor as identified in these plans and Figure 4 displays the SR 123 Bicycle network.

Table 4. Bicycle and Pedestrian Needs along SR 123

Location	Proposed Needs
SR 123 ALA 0.00 - 5.18/CC 0.00-2.2 in Oakland, Emeryville, Berkeley , Albany, El Cerrito and Richmond	Improve Pedestrian safety at intersections by constructing bulb-outs and providing refuge
	Improve crossings and close gaps in bicycle/pedestrian infrastructure (including signs and lighting)
	Implement streetscape improvements on San Pablo Avenue
	Install Class II, III or IV bike facilities on San Pablo Avenue

⁴ <http://www.bikeberkeley.com/resources/draftplancitycouncil/>

⁵ <http://el-cerrito.org/DocumentCenter/View/4974>

⁶ <http://www.el-cerrito.org/index.aspx?nid=396>

Figure 4. Bicycle Facilities



Transit Facility

Serving Alameda and Contra Costa Counties, Alameda-Contra Costa Transit (AC Transit) operates local Routes 7, 49, 51B, 52, 72, and 72M, Rapid Route 72R, Night Owl Route 802 and Transbay Routes C, F, G, H, L and Z within the SR 123 Corridor. The Western Contra Costa Transit Authority (WestCAT) operates intercity routes JL and JR and Lynx Transbay service between Hercules, El Cerrito Del Norte BART Station and San Francisco. Golden Gate Transit (Marin County), Solano County Transit, Fairfield and Suisun Transit and VINE (Napa County) all offer daily regional bus service to and from BART via the El Cerrito Del Norte BART Station. Emery Go-Round is a first-mile/last-mile shuttle service that offers commuter and regular service between MacArthur BART Station and work and retail locations in Emeryville. BART operates the Richmond – Daly City - Millbrae and Richmond – Warm

Springs/South Fremont lines seven days a week from stations in Richmond, El Cerrito and Berkeley with service to the San Francisco and Oakland International Airports. Capitol Corridor/Amtrak interregional rail and Thruway bus service with destinations throughout California and beyond, is accessible from connecting intermodal stations in Emeryville, Berkeley and Richmond. Several recently completed plans have recommended transit improvement strategies to the SR 123 Corridor, including the AC Transit Major Corridors Study (August 2016), the West County High Capacity Transit Study (May 2017) and the Alameda CTC Multimodal Arterial Plan (October 2016). Recently completed improvements include transit queue jump lanes on SR 123 at Hill Street in El Cerrito and at MacDonald in Richmond. Projects being considered include a Western Contra Costa County BART extension and a new Bus Rapid Transit (BRT) service between Oakland and Richmond on San Pablo Avenue. See Table 5 and Figure 5 for transit services within the SR 123 Corridor.

Table 5. SR 123 Transit Service

TCR Segment	Mode & Collateral Facility	Name	Route End Points	Headway	Operating Period	ITS & Technology	Stops	Amenities	Bikes Allowed	Location Description
							Cities			
1/2	Local / Transbay/ Night Owl	AC Transit /County Connection /Golden Gate Transit/ WestCAT	Richmond / Oakland San Rafael /San Francisco	Med	M-F	Real-time	Albany, Berkeley, El Cerrito, Emeryville, Oakland, Richmond San Rafael, San Francisco,	Bike Racks, Wifi	Y	NA
2	Regional Bus Service	Fairfield-Suisun Transit/ Vallejo Transit	Fairfield/ Vallejo/ El Cerrito	Med	Daily	Real-Time	Benicia, Fairfield, Vallejo, El Cerrito	Bike Racks, Wifi	Y	El Cerrito Del Norte BART Station
1	First-Mile/Last-Mile Shuttle	Emery-Go-Round	Emeryville /Oakland	Med	Daily	Real-Time	Emeryville/Oakland	Bike Racks	Y	Shellmound Avenue. Emeryville/ MacArthur BART Station
1/2	Urban Rail	BART	SF Airport/ Richmon/ Warm Springs/ South Fremont/ Pittsburg/ Bay Point	Med	Daily	ETA-ETD*	Castro Valley, San Leandro, Oakland	Space for Bike Racks, Wifi	Y	El Cerrito Del Norte, El Cerrito Plaza, North Berkeley, Downtown Berkeley, Ashby, MacArthur Stations
1/2	Intercity Rail	Capitol Corridor	Sacramento/ San Jose	Med	Daily	NA	Oakland/Berkeley Emeryville	Bike Racks, Wifi	Y	Jack London Square/ I-580/I-80 Powell Ave./University Avenue

* ETA-ETD = Estimated time of arrival and estimated time of departure

Prepared By:
Office of System & Regional Planning
GIS Branch

SR 123 Transit

- SR 123 Corridor**
- San Pablo Ave**
- Park and Ride Facility**

Bus Routes

- AC Transit
- Emery Go-Round
- Fairfield-Suisun Transit
- Golden Gate Transit
- The County Connection
- Vallejo Transit
- WestCAT

Commuter Rail

- BART
- Amtrak Capitol Corridor

Map Labels: San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, MacArthur, Piedmont, Contra Costa County, Alameda County, San Francisco Bay, Treasure Island, San Pablo Dam Rd, San Pablo Ave, Market Ave, Richmond Blvd, Cutting Blvd, Patroño Ave, Carlson Blvd, Solano Ave, Gilman St, University Ave, Sacramento St, Alcatraz Ave, Powell St, W MacArthur Blvd, Piedmont Ave, Broadway, Pleasant Valley Ave, Rockridge, Ashby, North Berkeley, Berkeley Plaza, El Cerrito Plaza, El Cerrito Del Norte, El Cerrito, Albany, Berkeley, Emeryville, MacArthur, Piedmont, Richmond, San Pablo, Contra Costa County, Alameda County, San Francisco Bay, Treasure Island.

Scale: 0 0.25 0.5 1 Miles

Legend: SR 123 Corridor, San Pablo Ave, Park and Ride Facility, AC Transit, Emery Go-Round, Fairfield-Suisun Transit, Golden Gate Transit, The County Connection, Vallejo Transit, WestCAT, BART, Amtrak Capitol Corridor.

SR 123 serves as a part of a gateway for the flow of commerce and economic activity in and out of the East Bay region of the San Francisco Bay Area. While it is not on the National Highway Freight Network (NHFN), the California Freight Mobility Plan (CFMP) designates SR 123 as Tier 3 freight facility that is limited to vehicles with a 40-foot or less Kingpin-to-Rear-Axle (KPRA) length. The route serves street level commercial districts in western Alameda and Contra Costa counties that represent a mix of retail, commercial and industrial activities. Most of the freight activities along SR 123 include service and delivery to and from the various neighborhood shops, small scale retail grocery stores, service businesses and large scale nationally branded retail outlets. This helps explain

why trucks account for only two to three percent of total vehicle annual average daily traffic (AADT) while approximately 77 percent of those trucks are two and three-axle trucks. It is anticipated that over the twenty-year Planning horizon, Average Annual Daily Truck Traffic (AADTT) will increase as a percentage of total Average Annual Daily Traffic (AADT). Figure 6 below shows freight facilities within the SR 123 Corridor.

Figure 6. Freight Facilities



ENVIRONMENTAL CONSIDERATIONS

The purpose of the environmental scan is to conduct a high-level identification of potential environmental factors that may require future analysis in the project development process. This information does not represent all environmental considerations that can exist within the corridor vicinity. Caltrans supports reducing environmental impacts from the transportation system as an overall strategic objective. One of Caltrans sustainability objectives is to achieve an 80 percent reduction in greenhouse gas emissions below 1990 levels by 2050. A summary of the environmental factors included in this scan is listed in Table 6 and displayed in Figure 7.

Factors receiving medium levels of environmental consideration as a result of this preliminary environmental scan include the numerous active and abandoned hazardous material sites along both segments of the Corridor, geology, soils and seismic impacts due to the routes proximity to the Hayward, Wildcat and Moraga Faults as well as the noise levels associated with a commercial urban corridor like SR 123. These can be significant since, the route is in a partially industrial landscape that is transforming towards a more urban center.

Table 6. Environmental Considerations

Segment			1	2
Section 4(f) Land			Low	Low
Coastal Zone			Low	Low
Environmental Justice			Low	Low
Cultural Resources			Low	Low
Geology/Soils/Seismic			Med	Med
Climate Change/Sea Level Rise Vulnerable			Low	Low
Hazardous Materials			Med	Med
Naturally Occurring Asbestos			Low	Low
Air Quality	Ozone		Non-Attainment	Non-Attainment
	Particulate Matter (PM)	2.5	Non-Attainment	Non-Attainment
		10	Attainment	Attainment
	CO		Attainment	Attainment
Noise			Med	Med
Waters and Wetlands			Low	Low
Fish Passage			Low	Low
Habitat Connectivity			Low	Low

Figure 7. Environmental Factors



CORRIDOR PERFORMANCE

SR 123 serves both local and regional commuter trips as well as transit trips and truck traffic for service and delivery. As shown in Table 7, AADT as well as Vehicle Miles Traveled (VMT) will nearly double in each route segment by the 2040 horizon year according to traffic forecasting data. The data also suggests that northbound traffic during both peak periods will increase more than southbound traffic will over the next 25-years. Truck volumes are forecasted to increase but the majority of the increase will be led by two and three-axle trucks, followed by larger four and five-axle trucks as future new and infill residential and retail opportunities along the route are realized. The impact of this combined demand, the exceptional amount of ingress and egress points along the route results in a rather wide range of Level of Service (LOS) indicators. According to the Alameda CTC 2016 and CCTA 2015 Level of Service Monitoring Reports, LOS along SR 123 fluctuates from “F” at Carlson Boulevard in El Cerrito to “B” at the Oakland-Emeryville border while most other locations along the route experience LOS levels in the “C” and “D” range with speeds along the Corridor ranging between 16 and 28 miles per hour. LOS was calculated by measuring the travel time between Congestion Management Plan segments along SR 123. According to the AC Transit 2016 Major Route Report the average speeds of AC Transit vehicles along the Corridor is around eleven miles per hour while average speed data for trucks is not available at this time.

Table 7. Traffic Performance on State Highway

	Seg 1	Seg 2
Basic System Operations		
AADT 2015	29,800	42,800
AADT 2040	57,900	81,900
AADT: Growth Rate/Year (%)	7.8	7.7
VMT 2015 per day	154,364	94,160
VMT 2040 per day	299,922	180,180
Truck Traffic 2015		
Total AADTT	607	489
Total Trucks (% of AADT)	2.92	2.41
5+ Axle Average Annual Daily Truck Traffic	49	56
5+ Axle Trucks (as % of AADTT)	1.65%	2.41%
Truck Traffic 2040		
Total Average Annual Daily Truck Traffic	629	507
Total Trucks (% of AADT)	2.94	2.1
5+ Axle Average Annual Daily Truck Traffic	49	63
Peak Hour Traffic Data 2015		
AM NB Peak Hour Volume	800	1000
AM SB Peak Hour Volume	1100	1600
AM Peak Hour Directional Split SB/NB	57/43	61/49
PM Peak Hour Directional Split SB/NB	46/54	44/55
PM NB Peak Hour Volume	1700	1600
PM SB Peak Hour Volume	1400	1300
Peak Hour Traffic Data 2040		
AM NB Peak Hour Volume	1400	1300
AM SB Peak Hour Volume	1600	1700
AM Peak Hour Directional Split SB/NB	53/47	56/44
PM Peak Hour Directional Split SB/NB	47/53	42/58
PM NB Peak Hour Volume	2200	2200
PM SB Peak Hour Volume	1600	1700

Source: District 4 Project Level Forecasting, 2017

STRATEGIES, PLANNED AND PROGRAMMED PROJECTS

The strategies, and planned and programmed projects that form the facility concept for the SR 123 Corridor were selected from a number of sources. A majority of them are the result of previous and current planning by the Alameda CTC and AC Transit and local specific plans. These efforts are the result of a comprehensive dialog between local jurisdictions along the Corridor, Alameda CTC, CCTA, BART, AC Transit, WestCAT, Contra Costa County Transit Authority and MTC.

Future multimodal short and long-term improvements that help inform the Corridor Concept will notably be shaped by the San Pablo Avenue Multimodal Corridor Project, which will take into consideration conclusions and recommended strategies from various plans and studies including the West County High Capacity Transit Study, the Alameda CTC Multimodal Arterial Plan (MAP), the CCTA Countywide Bicycle and Pedestrian Plan (CBPP) and the CCTA Countywide Transportation Plan (CTP) Update. The San Pablo Avenue Multimodal Corridor Project is a two-year effort led by Alameda CTC with the goal to develop project alternatives to address issues along the entire San Pablo Avenue (including SR 123), such as competing local and regional travel needs along the route, improving transit reliability and ridership, developing a comprehensive Complete Streets implementation plan and improving bicycle and pedestrian safety. The scope of this study will also include project development, funding strategy deployment, and the management, ownership and maintenance of the projects to be recommended by the study. Participating stakeholders include local jurisdictions, transit operators, Alameda CTC, Caltrans, CCTA, and MTC. The study will identify the roles and responsibilities of each partner agency during the course of project development, funding strategy deployment, and the management, ownership and maintenance of the projects components. It's estimated that the effort will be completed by 2019.

In 2015, Senate Bill 486 was signed into law by Governor Brown, requiring Caltrans to develop and implement a *robust Asset Management Plan* by the end of the 2020. The State Highway Operation and Protection Program (SHOPP) is the primary program available to Caltrans to execute the Asset Management Plan. The SHOPP addresses the State's *fix-it-first* approach to the State Highway System. For future SHOPP cycles, priorities will be evaluated to match funding and the goals established in the Caltrans Strategic Management Plan, such as Safety, Sustainability, Livability, Economy and Performance. SHOPP projects can address a variety of needs such as Complete Streets, pavement condition, Transportation Management Systems and strategies, the Americans with Disabilities Act (ADA) and sea level rise, depending on project category. The SHOPP is limited to maintenance, safety, and rehabilitation projects on existing State highways and bridges, with generally no projects that add new traffic capacity. Table 8 lists Programmed, Planned and Proposed projects that are identified in existing plans and programming documents as well as those recommended by the TCR. The planned and proposed projects are potential candidates for future funding consideration from SHOPP or other funding programs.

Table 8. Programmed, Planned and Proposed Projects

Segment	Description	Location	Source	Status
SHOPP				
1	Emergency Response/Construct subsurface and horizontal drains, reconstruct pavement	ALA 0.2	2016 SHOPP EA 2K460	Programmed
1	Roadway Preservation/Capital Preventative Maintenance	ALA 0.00 – 5.2	2015 Ten-Year SHOPP Plan SHOPP Tool ID 15903	Planned
1	Collision Reduction/install traffic signal at Bancroft Way	ALA 2.83 – 2.83	2014 SHOPP EA 1J700	Programmed
1	ADA Improvement from Ashby Ave. to Delaware Street	ALA 1.9 – 3.4	2017 Ten-Year SHOPP Plan EA 2G780	Planned
2	Roadway Preservation/ Capital Preventative Maintenance	CC 0.0 – 2.2	2015 Ten-Year SHOPP Plan SHOPP Tool ID 15905	Planned
TOS / ITS				
1-2	Extensive ITS field deployment connected to CT TMC (VDS, CMP, HAR and CCTV)	PM 0.00 – 7.38	Alameda CTC MAP*/TCR Recommendation	Planned/Proposed
1-2	Interconnected Adaptive Signal Timing Controls	PM 0.00 – 7.38	Alameda CTC MAP/TCR Recommendation	Planned/Proposed
1-2	Changeable Message Signs (CMS) Closed Circuit TV	PM 0.00 – 7.38	Alameda CTC MAP/TCR Recommendation	Planned/Proposed
1-2	ITS Architecture with infrastructure-vehicle communication abilities	PM 0.00 – 7.38	Alameda CTC MAP/TCR Recommendation	Planned/Proposed
1-2	Active wayfinding infrastructure (signage, HAR, CMS)	PM 0.00 – 7.38	Alameda CTC MAP/TCR Recommendation	Planned/Proposed
Transit				
1-2	Construct bus bulbs/curb extensions/boarding islands	PM 0.00 – 7.38	Alameda CTC MAP/TCR Recommendation	Planned/Proposed
1-2	Real Time Adaptive Signal Timing/signal preemption for transit vehicles	PM 0.00 – 7.38	Alameda CTC Countywide Transit Plan/TCR Recommendation	Planned/Proposed
1-2	Relocate existing bus stops to opposing side of intersection/install kiosks.	PM 0.00 – 7.38	Alameda CTC Countywide Transit Plan/TCR Recommendation	Planned/Proposed
1-2	Dedicated bus lanes	PM 0.00 – 7.38	Alameda CTC Countywide Transit Plan/TCR Recommendation	Planned/Proposed
1-2	Bus stop consolidation	PM 0.00 – 7.38	Alameda CTC Countywide Transit Plan/TCR Recommendation	Planned/Proposed
Active Transportation				
1-2	Improve pedestrian safety at intersections by constructing bulb-outs and providing refuge	PM 0.00 – 7.38	Alameda CTC MAP/CCTA CBPP/TCR Recommendation	Planned/Proposed
1-2	Improve crossings and close gaps in bicycle/pedestrian infrastructure (signs, lighting)	PM 0.00 – 7.38	Alameda CTC MAP/CCTA CBPP/TCR Recommendation	Planned/Proposed
1-2	Implement streetscape improvements on San Pablo Avenue	PM 0.00 – 7.38	Alameda CTC MAP/CCTA CBPP/TCR Recommendation	Planned/Proposed
1-2	Install Class II, III or IV bike facilities on San Pablo Avenue	PM 0.00 – 7.38	Alameda CTC MAP/CCTA CBPP/City of Berkeley 2017 Bicycle Plan/City of El Cerrito 2016 Active Transportation Plan/City of El Cerrito 2014 San Pablo Specific Plan/TCR Recommendation	Planned/Proposed

* MAP = Multimodal Arterial Plan

APPENDICES

APPENDIX A GLOSSARY OF TERMS AND ACRONYMS

Acronyms

AADT – Annual Average Daily Traffic
AADTT – Annual Average Daily Truck Traffic
AB – Assembly Bill
ABAG – Association of Bay Area Governments
ADA – Americans with Disabilities Act of 1990
ADT – Average Daily Traffic
Alameda CTC – Alameda County Transportation Commission
ATP – Active Transportation Program
BAAQMD – Bay Area Air Quality Management District
BCDC – Bay Conservation and Development Commission
BRT – Bus Rapid Transit
BY – Base Year
Caltrans – California Department of Transportation
CARB – California Air Resources Board
C/CAG – City/County Association of Governments of San Mateo County
CCC – California Coastal Commission
CCTA – Contra Costa Transportation Authority
CEC – California Energy Commission
CESA – California Endangered Species Act
CFAC – California Freight Advisory Committee
CFMP – California Freight Mobility Plan
CMA – Congestion Management Agencies
CMAQ – Congestion Mitigation and Air Quality
CMP – Congestion Management Plan
CSFAP – California Sustainable Freight Action Plan
CSMP – Corridor System Management Plan
CEQA – California Environmental Quality Act
CSS – Context Sensitive Solutions
CTC – California Transportation Commission
CTP – California Transportation Plan
DD – Deputy Directive
DSMP – District System Management Plan
ECA – Essential Connectivity Areas
FAST Act – Fixing America’s Surface Transportation Act
FASTLANE – Fostering Advancements in Shipping and Transportation for the Long-Term Achievement
of National Efficiencies grant program
FHWA – Federal Highway Administration
FSR – Feasibility Study Report
FSTIP – Federal Statewide Transportation Improvement Program
FTA – Federal Transit Administration
FTIP – Federal Transportation Improvement Program
GHG – Greenhouse Gas
GIS – Geographic Information System
HCP – Habitat Conservation Plan

HOT – High Occupancy Toll lane
 HOV – High Occupancy Vehicle lane
 HY – Horizon Year
 ICM – Integrated Corridor Mobility
 IGR – Intergovernmental Review
 ITIP – Interregional Transportation Improvement Program
 ITS – Intelligent Transportation System
 ITSP – Interregional Transportation Strategic Plan
 KPRA – Kingpin-to-Rear-Axle
 LOS – Level of Service
 MAP-21 – Moving Ahead for Progress in the 21st Century
 MPO – Metropolitan Planning Organizations
 MTC – Metropolitan Transportation Commission
 NOA – Naturally Occurring Asbestos
 NCCP – Natural Community Conservation Plan
 NEPA – National Environmental Policy Act
 NHS – National Highway System
 NHFN – National Highway Freight Network
 NMFN – National Multimodal Freight Network
 NVRTA – Napa Valley Transportation Authority
 PAED – Project Approval/Environmental Document
 PBA – Plan Bay Area
 PCA – Priority Conservation Area
 PDA – Priority Development Area
 PFN – Primary Freight Network
 PID – Project Initiation Document
 PIR – Project Initiation Report
 PM – Post Mile
 PM 2.5 – Particulate Matter 2.5 micrometers or less in diameter
 PM 10 – Particulate Matter 10 micrometers or less in diameter
 PSR – Project Study Report
 PR – Project Review
 PTSF – Percent Time Spent Following
 RHNA – Regional Housing Needs Allocation
 RTP –Regional Transportation Plan
 RTIP – Regional Transportation Improvement Program
 RTPA – Regional Transportation Planning Agencies
 SACOG – Sacramento Area Council of Governments
 SAFETEA-LU – Safe, Accountable, Flexible and Efficient Transportation Equity Act, a Legacy for Users
 SB – Senate Bill
 SCS – Sustainable Community Strategies
 SCTA – Sonoma County Transportation Authority
 SFCTA – San Francisco County Transportation Authority
 SHOPP – State Highway Operation Protection Program
 SHS – State Highway System
 SJCOG – San Joaquin Council of Governments
 SMF – Smart Mobility Framework
 SR – State Route
 STA – Solano Transportation Authority
 STIP – State Transportation Improvement Program

STP – Surface Transportation Program
STRAHNET – Strategic Highway Network
TAM – Transportation Authority of Marin
TCIF – Trade Corridors Improvement Fund
TCRP – Transit Cooperative Research Program
TEA-21 – Transportation Equity Act for the 21st Century
TCR – Transportation Concept Report
TIGER – Transportation Investment Generating Economic Recovery
TDM – Transportation Demand Management
TMP – Transportation Management Plan
TMS – Transportation Management System
TSN – Transportation System Network
VMT – Vehicle Miles Traveled
VTA – Santa Clara Valley Transportation Authority
VPH – Vehicles per Hour

Definitions

AADT – Annual Average Daily Traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th. Traffic counting is generally performed by electronic counting instruments moved from location throughout the state in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways and other purposes.

Base Year – The year that the most current data is available to the Districts.

Bikeway Class I (Bike Path) – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.

Bikeway Class II (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway.

Bikeway Class III (Bike Route) – Provides for shared use with pedestrian or motor vehicle traffic.

Bikeway Class IV (Separated Bikeway/Cycle Track) – Provides for exclusive use for bicycles by separating bikeway from motor vehicle traffic.

Bottlenecks – A bottleneck is a location where traffic demand exceeds the effective carrying capacity of the roadway. In most cases, the cause of a bottleneck relates to a sudden reduction in capacity, such as a lane drop, merging and weaving, driver distractions, a surge in demand, or a combination of factors.

Capacity – The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.

Capital Facility Concept – The 20-25 year vision of future development on the route to the capital facility. The capital facility can include capacity increasing, State Highway, bicycle facility, pedestrian facility, transit facility (Intercity Passenger Rail, Mass Transit Guideway etc.), grade separation, and new managed lanes.

Conceptual Project – A conceptual improvement or action is a project that is needed to maintain mobility or serve multimodal users, but is not currently included in a fiscally constrained plan and is not currently programmed. It could be included in a General Plan or in the unconstrained section of a long-term plan.

Corridor – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, bicycle, pedestrian, and transit route alignments. Off system facilities are included as informational purposes and not analyzed in the TCR.

Facility Concept – Describe the Facility and strategies that may be needed within 20-25 years. This can include capacity increasing, State Highway, bicycle facility, pedestrian facility, transit facility, Non-capacity increasing operational improvements, new managed lanes, conversion of existing managed lanes to another managed lane type or characteristic, TMS field elements, Transportation Demand Management and Incident Management.

Facility Type – The facility type describes the State Highway facility type. The facility could be freeway, expressway, conventional, or one-way city street.

Freight Generator – Any facility, business, manufacturing plant, distribution center, industrial development, or other location (convergence of commodity and transportation system) that produces significant commodity flow, measured in tonnage, weight, carload, or truck volume.

Horizon Year – The year that the future (20-25 years) data is based on.

Intermodal Freight Facility – Intermodal transport requires more than one mode of transportation. An intermodal freight facility is a location where different transportation modes and networks connect and freight is transferred (or “transloaded”) from one mode, such as rail, to another, such as truck.

ITS – Intelligent Transportation System improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. Intelligent transportation systems encompass a broad range of wireless and wire line communications-based information and electronics technologies to collect information, process it, and take appropriate actions.

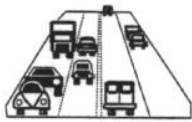
LOS – Level of Service is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience. Six levels of LOS are generally categorized.



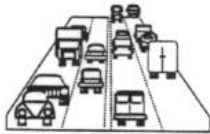
LOS A describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



LOS B is also indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



LOS C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver with the traffic stream is now clearly affected by the presence of other vehicles.



LOS D demonstrates a range in which the ability to maneuver is severely restricted because of the traffic congestion. Travel speed begins to be reduced as traffic volume increases.



LOS E reflects operations at or near capacity and is quite unstable. Because the limits of the level of service are approached, service disruptions cannot be damped or readily dissipated.



LOS F a stop and go, low speed conditions with little or poor maneuverability. Speed and traffic flow may drop to zero and considerable delays occur. For intersections, LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered by most drivers unacceptable often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

Multi-modal – The availability of transportation options using different modes within a system or corridor, such as automobile, subway, bus, rail, or air.

Peak Hour – The hour of the day in which the maximum volume occurs across a point on the highway.

Peak Hour Volume – The hourly volume during the highest hour traffic volume of the day traversing a point on a highway segment. It is generally between 6 percent and 10 percent of the ADT. The lower values are generally found on roadways with low volumes.

Planned Project – A planned improvement or action is a project in a fiscally constrained section of a long-term plan, such as an approved Regional or Metropolitan Transportation Plan (RTP or MTP), Capital Improvement Plan, or measure.

Post Mile – A post mile is an identified point on the State Highway System. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Milepost values usually increase from south to north or west to east depending upon the [general direction](#) the route follows within the state. The milepost at a given location will remain the same year after year. When a section of road is relocated, new milepost (usually noted by an alphabetical prefix such as "R" or "M") are

established for it. If relocation results in a change in length, "milepost equations" are introduced at the end of each relocated portion so that mileposts on the remainder of the route within the county will remain unchanged.

Programmed Project – A programmed improvement or action is a project in a near-term programming document identifying funding amounts by year, such as the State Transportation Improvement Program or the State Highway Operations and Protection Program.

Route Designation – A route's designation is adopted through legislation and identifies what system the route is associated with on the State Highway System. A designation denotes what design standards should apply during project development and design. Typical designations include but not limited to National Highway System (NHS), Interregional Route System (IRRS), Scenic Highway System,

Rural – Fewer than 5,000 in population designates a rural area. Limits are based upon population density as determined by the U.S. Census Bureau

Segment – A portion of a facility between two points.

TDM – Transportation Demand Management programs designed to reduce or shift demand for transportation through various means, such as the use of public transportation, carpooling, telework, and alternative work hours. Transportation Demand Management strategies can be used to manage congestion during peak periods and mitigate environmental impacts.

TSMO – Transportation Systems Management and Operations are Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects, describing the system operations and management elements that may be needed within 20-25 years. This can include Non-capacity increasing operational improvements (auxiliary lanes, channelization's, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic (e.g. HOV lane to HOT lane), TMS Field Elements, Transportation Demand Management, and Incident Management.

Urban – 5,000 to 49,999 in population designates an urban area. Limits are based upon population density as determined by the U.S. Census Bureau.

Urbanized – Over 50,000 in population designates an urbanized area. Limits are based upon population density as determined by the U.S. Census Bureau.

VMT – Is the total number of miles traveled by motor vehicles on a road or highway segments.